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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of: W. Kenneth Wilkinson) Examiner R. Sergent
Application No.: 09/843,749)
Filing Date: April 30, 2001)
Title: Melt Spun Thermoplastic Polyurethanes Useful as Textile
Fibers

Assistant Commissioner For Patents and Trademarks
Washington, D.C. 20231

DECLARATION UNDER 37 CFR 1.132

Dear Sir:

I, W. Kenneth Wilkinson, declare that:

1. I am the inventor in the above-identified patent application which discloses and claims melt spun polyurethane fibers and polymer compositions for preparing the fibers. The claims include processes for preparing the polymer compositions, and processes for preparing the polyurethane fibers. The polymer compositions, which are prepared by an unique multi-step process, comprise a polyurethane polymer having a number average molecular weight of about 200,000 and above. This molecular weight is much higher than typical Spandex fibers, which have number average molecular weights of about 100,000. The molecular weight is higher to compensate for the lack of urea functionality in the backbone. Also the process of preparing the polyurethane polymers includes the steps of preparing the so-called "soft" segments and "hard" segments separately, giving rise to a final polymer product having a molecular backbone containing an orderly arrangement of the "soft" segments and "hard" segments.

2. I am familiar with the contents of the Official Action mailed October 3, 2002, in which claims 1-9, 12, 14, 16, 22, 24 and 26 were rejected under 35 U.S.C. 102(b) as being anticipated by Seneker, et al, U.S. Patent Nos. 5,843,357 and 5,708,118.
3. It is recognized within the art that polyurethane polymers and poly (urea) urethane polymers can have molecular backbones made up of "hard" segments and "soft" segments. The carbamate functional unit contributes to the "hardness" of any segment, whereas the alkyleneoxy group contributes to the "softness" of any segment.
4. Polyurethanes made in a one-shot process always have molecular backbones which are made up of randomly spaced units of "hard" segments and "soft" segments. The randomness gives rise to poor physical properties of fibers spun from such polyurethanes.
5. U.S. Patent No. 5,843,357 to Seneker, et al discloses and claims a process for increasing the throughput in the preparation of films or fibers of segmented polyurethane/urea spandex elastomers by extrusion. The polymers are dissolved in an aprotic solvent. A process for preparing the polymers is disclosed and claimed (Claim 5). The process clearly includes the step of obtaining a mixture of glycol components, i.e., a mixture of a high molecular weight glycol and a low molecular weight glycol. The process also includes the step of adding a diamine chain extender.
6. U.S. Patent No. 5,708,118 to Seneker, et al discloses and claims a spandex elastomer. The elastomer is prepared according to the process which includes the step of obtaining a mixture of glycol components, i.e., a mixture of high molecular weight glycol and a low molecular weight glycol (Claim 9). The process also includes the step of adding a diamine chain extender.
7. I have reviewed the above-listed patents, and conclude that they do not anticipate my process and product as disclosed in my application. Both patents relate to polyurethane/urea compositions which do not melt and thus are not melt-spinnable. The compositions must be prepared in solvents and then spun from solvents to form threads.
8. The polyurethane/urea polymers disclosed in the 5,708,118 and 5,843,357 patents do not have molecular structure similar to my polymers. My polymers have nonrandom blocks of "hard" segments and "soft" segments because they are prepared by a process which form separate units of "hard" segments and "soft" segments before preparation of the final product.

9. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and such willful false statements may jeopardize the validity of the application or any patent issued therein.

February 24, 2003
(Date)

W. Kenneth Wilkinson
(Signed) W. Kenneth Wilkinson